PLATE I

A YOUNG HAND-REARED FAIRY PENGUIN

This young bird, deserted by his parents (N70 and N71) in December 1959, was found starving when 21 days old, removed from his nest and taken to be reared in captivity among cats and dogs.

a At the fledgling stage.

b At the juvenile stage.

a

b

PLATE I

PLATE II

BURROWS AT THE NECK STUDY AREA

a A typical burrow 1.5m deep, with a row of closely spaced bracken stalks placed across the entrance to ensure that any entry could immediately be detected.

b A shallow burrow recently formed by the occupant scooping out a hollow for a night roost.

a

b

PLATE II

PLATE III

A BANDED ADULT MALE, N413

This bird, an unsuccessful breeder in 1961-62, was captured at night when arriving for the moult on 7.ii.62, then placed in a cage to be examined, weighed and photographed daily (see Plates XIV-XVI). The photograph was taken at noon on 8.ii.62. (Day 1).

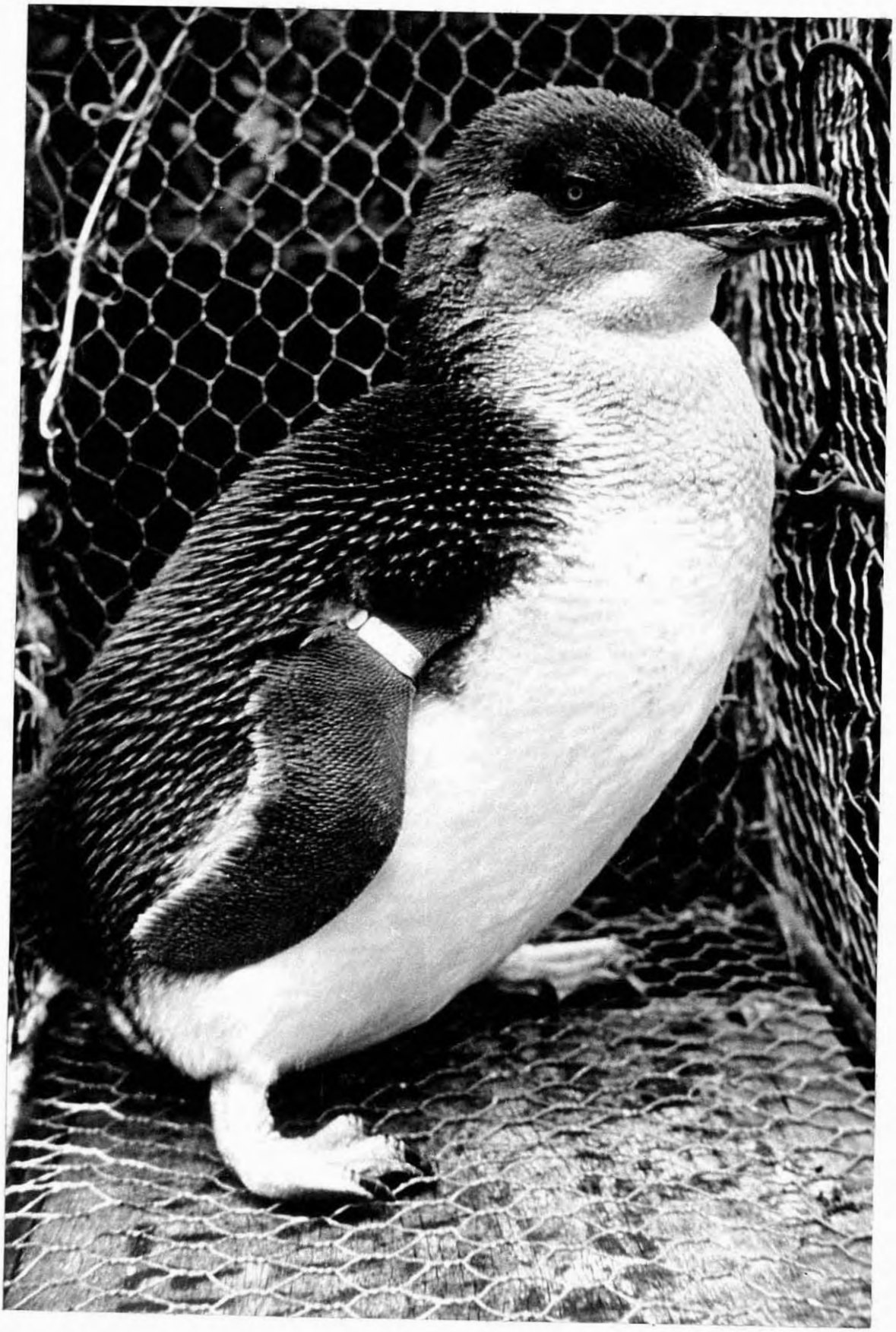


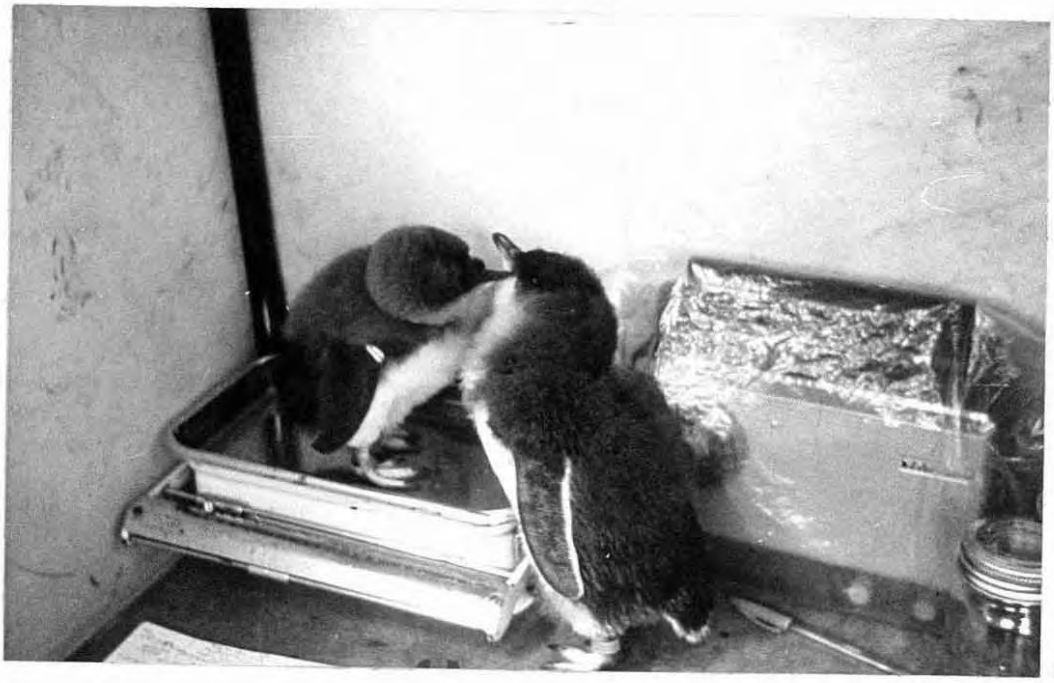
PLATE III

PLATE IV

USES OF THE TWO LABORATORY TENTS

a Two banded sibling chicks kiss-preening. The photograph, taken inside one of the laboratory tents on 31.i.62, when they were 53 and 54 days old respectively, shows the right flipper band and right leg band (single, wide, light blue) of one chick, NC39, and the left leg band (single, wide, red) of the other, NC40. See Figure 4.54 and Table 7.62.

b The second laboratory tent, erected in a hollow so that a group of burrows situated just below and south east of the main dune within the study area could be observed at night. This photograph shows Isthmus Bay beyond the ridge extending south of the dune.



a

b

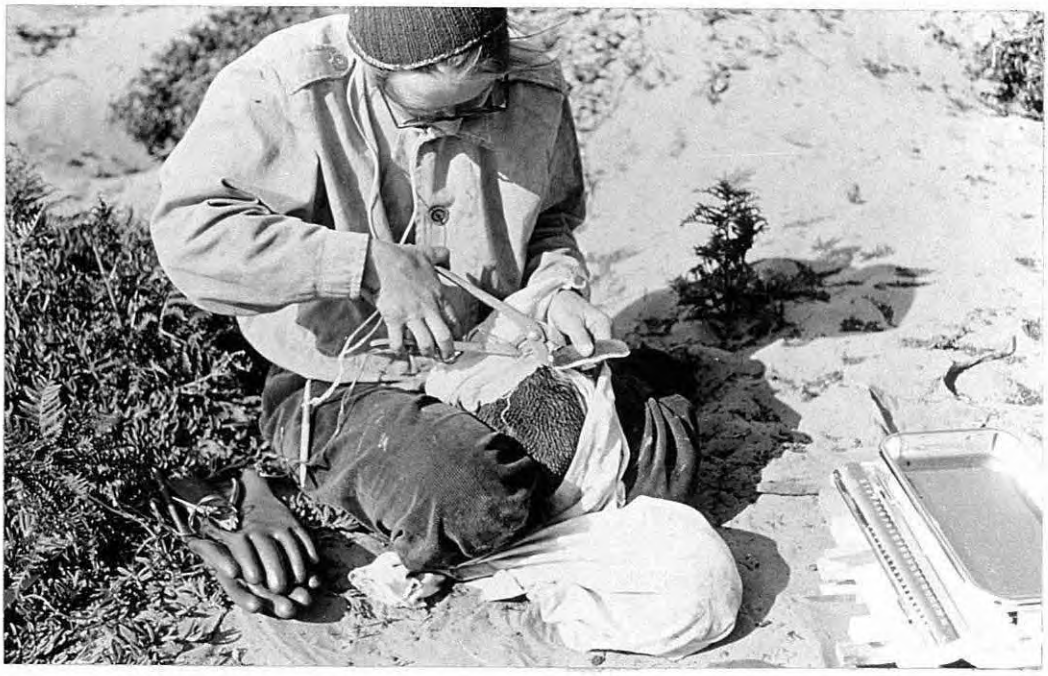
PLATE IV

PLATE V

TECHNIQUES OF BANDING AND MEASURING

a A flipper band being applied to the right flipper of an adult penguin (E28) which is still partly inside a cloth bag. A second penguin (also to be banded, weighed and measured) is within the second cloth bag. The circlip pliers, lying on the gloves, are used to open the bands and the multigrip pliers (in operation) to close them.

b Measuring the length of the bill of an adult penguin (N102) from the tip of the exposed culmen to the base on the dorsal side.



a

b

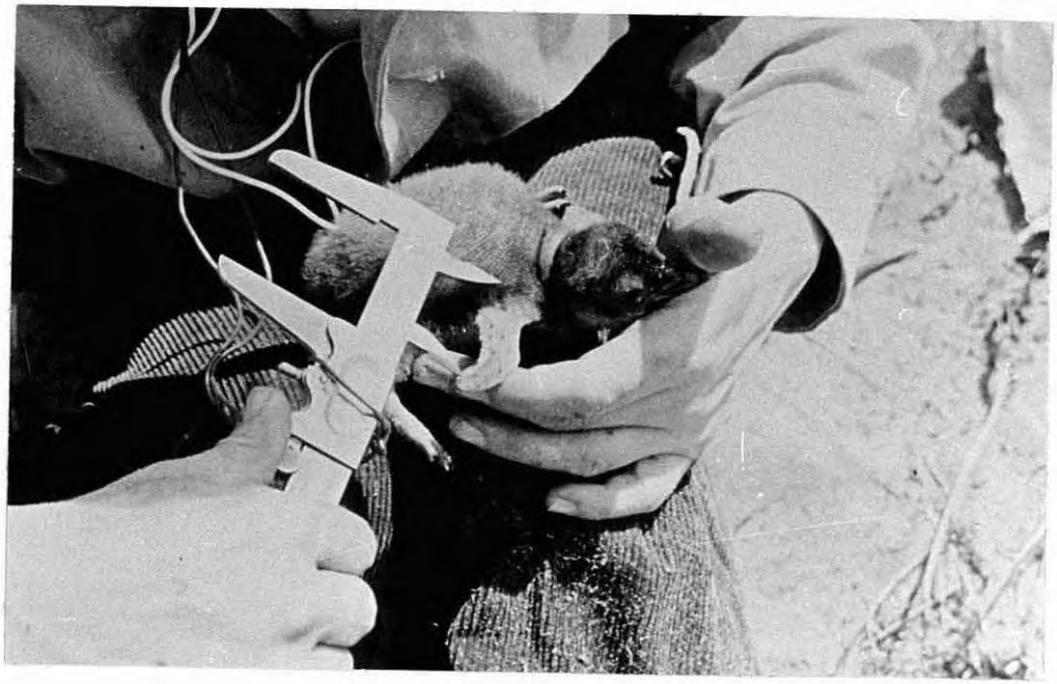
PLATE V

PLATE VI

TECHNIQUES OF MEASURING AND WEIGHING

a Measuring the flipper of a chick (NA1) from the axilla to the tip. The callipers have been lifted slightly to facilitate reading and the flipper is no longer fully outstretched.

b A penguin chick (KO) on the scales just after the recording of his weight when 5 days old.



a

b

PLATE VI

PLATE VII

AERIAL SURVEY PHOTOGRAPH OF THE NECK STUDY AREA (1963)

By courtesy of the Tasmanian Government Lands Department.

PLATE VIII

VIEWS OF THE NECK STUDY AREA

a Looking southwards from the Trig. point, showing the dividing ridge leading to the summit of the main dune within the study area, the north east slopes, the north east flats (in the left foreground) with tracks leading in from the north east ascending place; also a portion of the upper north west slopes, partly bare and honeycombed with burrows, contrasting with the scrub-covered far north west slopes (in the right foreground). The tent was erected on the north east flats, midway along the base of the dividing ridge.

b Looking northwards from the main dune within the study area, showing the dividing ridge leading up to the highest dune with the Trig. point and showing the north slopes in the foreground.

a

b

PLATE VIII

PLATE IX

AERIAL SURVEY PHOTOGRAPH OF THE BORONIA STUDY AREA (1969)

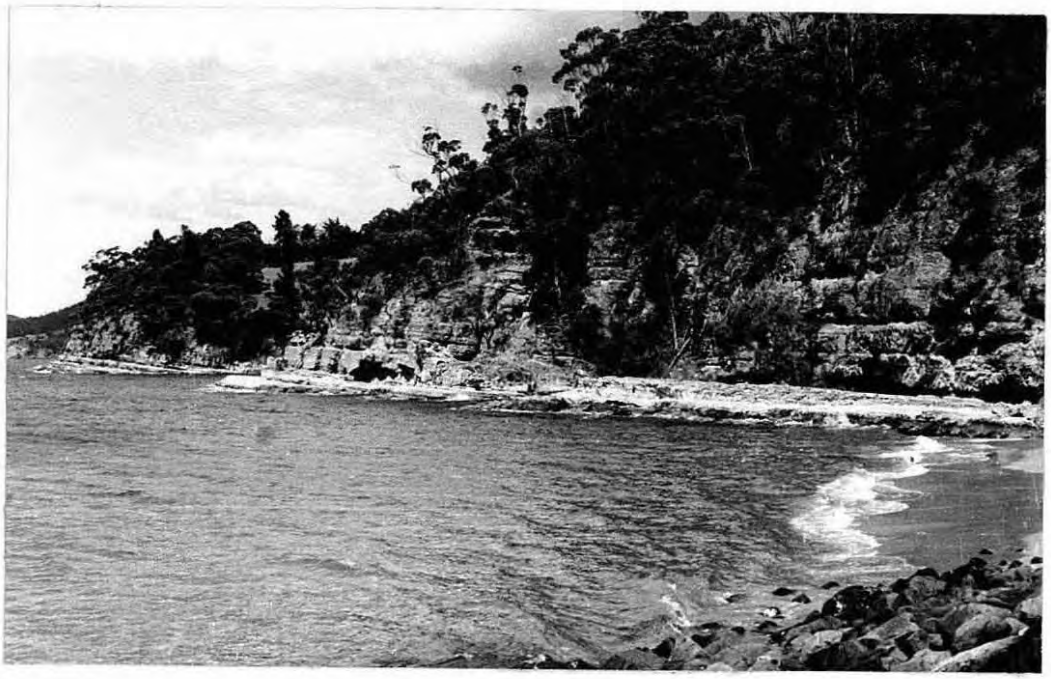
By courtesy of the Tasmanian Government Lands Department.

PLATE X

VIEWS OF THE BORONIA STUDY AREA

a Looking southwards, showing most of the small sandy beach and part of the mudstone platform at the base of the cliffs.

b Looking northwards, showing the rocky shore and boulders beyond the sandy beach.



a

b

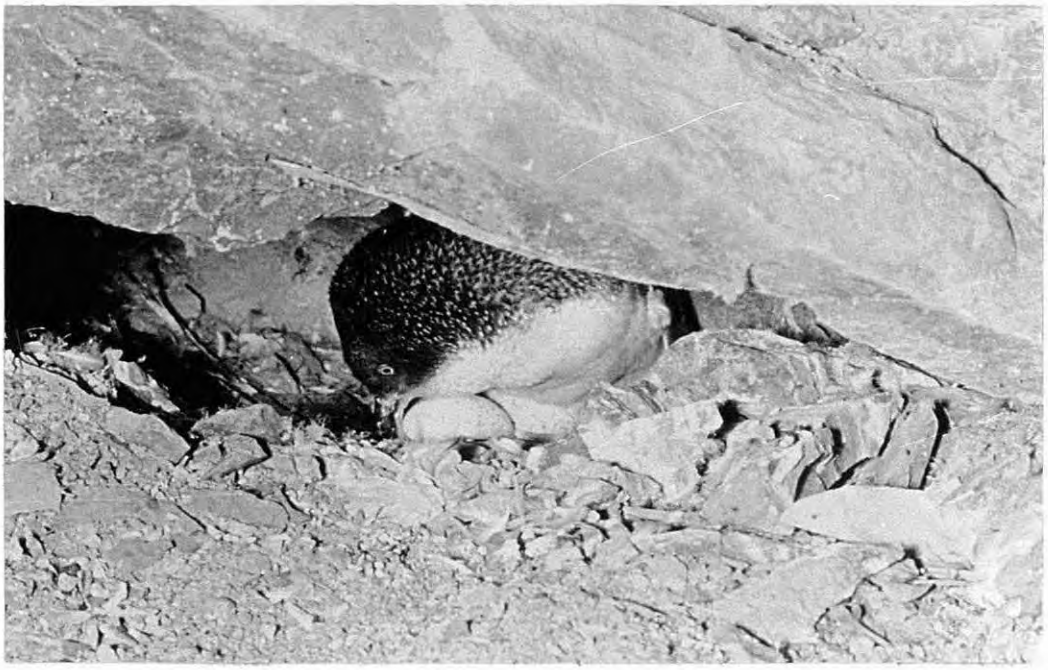
PLATE X

PLATE XI

SITES OF NESTING AND ROOSTING PLACES AT BORONIA

a A female (K3) incubating two eggs in a shallow crevice at the base of the cliffs.

b A female (K9) just extracted from beneath two boulders in the foreground.



a

b

PLATE XI

PLATE XII

AERIAL SURVEY PHOTOGRAPH OF THE TARONGA STUDY AREA (1969)

By courtesy of the Tasmanian Government Lands Department.

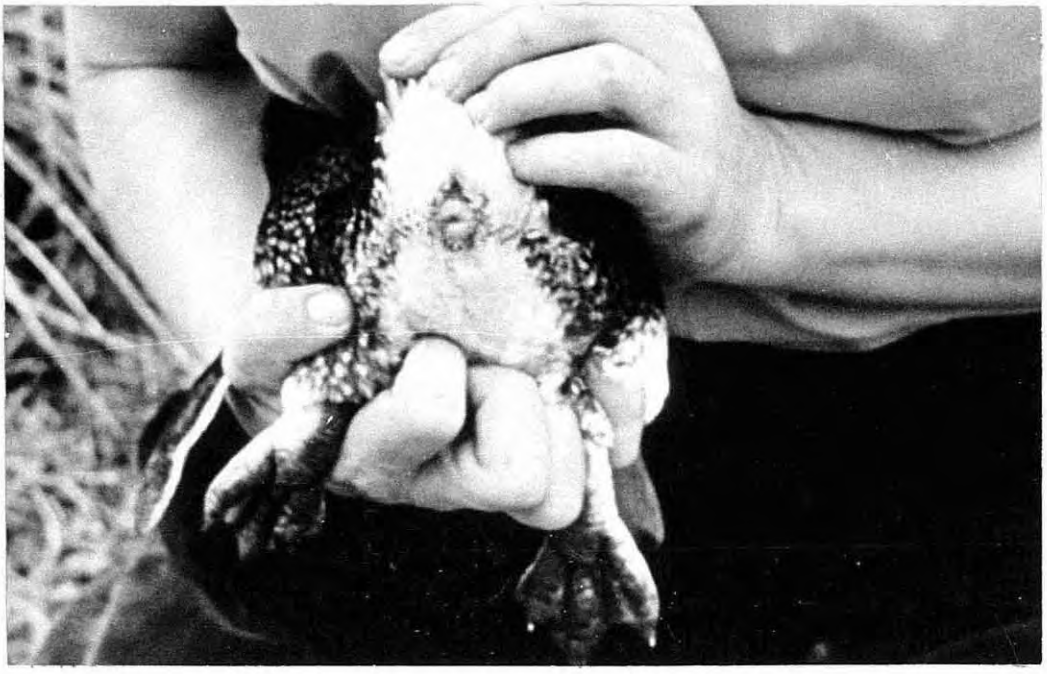
PLATE XIII

SEXING BY THE METHOD OF CLOACAL EXAMINATION OF BREEDING PAIRS

a The cloaca of the female breeding bird (N59) at oviposition.

b The cloaca of the male breeding bird (N102) with which N59 was observed copulating and regularly sharing the duty of incubation.

a



b

PLATE XIII

PLATE XIV

EARLY STAGES IN THE MOULT OF THE MALE N413

The opening up process until the shedding of the first feathers. This bird was photographed at noon each day from 8.ii.62 to 27.ii.62 (see Plate III for Day 1).

a Day 4 (11.ii.62)

The old feathers still lie flat and feel stiff except on the head and neck, where the new feathers are just breaking through the skin, each within its sheath and attached to the base of the corresponding old feather.

b Day 5 (12.ii.62)

The old feathers no longer lie flat on the back, neck and crown. The new feathers are well through up to 3mm long in the middle of the back, carrying the old feathers up on their tips.

c Day 7 (14.ii.62)

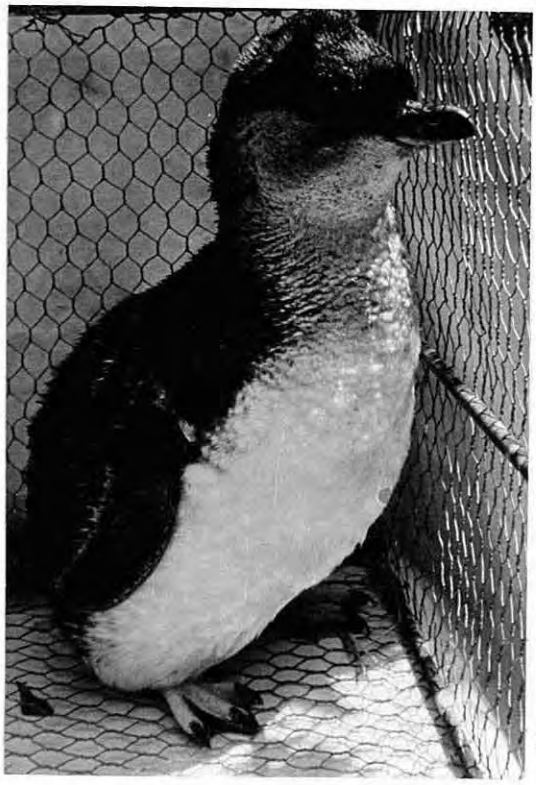
The old feathers are opening and becoming slightly untidy, even on the abdomen. Three have been shed. The new feathers are up to 11.5mm long in the middle of the back.

d Day 8 (15.ii.62)

The old feathers are all well open and appear untidy, since they no longer all face in the same direction. The new feathers are up to 14.5mm long in the middle of the back. Tiny clear patches are appearing on the nape of the neck. The skin of the flippers is becoming scaly.

a

b



c

d

PLATE XIV

PLATE XV

MIDDLE STAGES IN THE MOULT OF THE MALE N413

The shedding of most of the old feathers.

a Day 9 (16.ii.62)

The old feathers are well open, very untidy, loose and easily dislodged. Small clear patches are developing on the neck and the abdomen. The new feathers on the nape are still short and remain within their sheaths. The skin of the flippers is very scaly.

b Day 12 (19.ii.62)

A clear patch extends in a ring around the neck. The new feathers here are still short but have lost their sheaths. The lower abdomen is clear of old feathers. Tiny clear patches are appearing on the back. The skin of the flippers is becoming loose.

c Day 13 (20.ii.62)

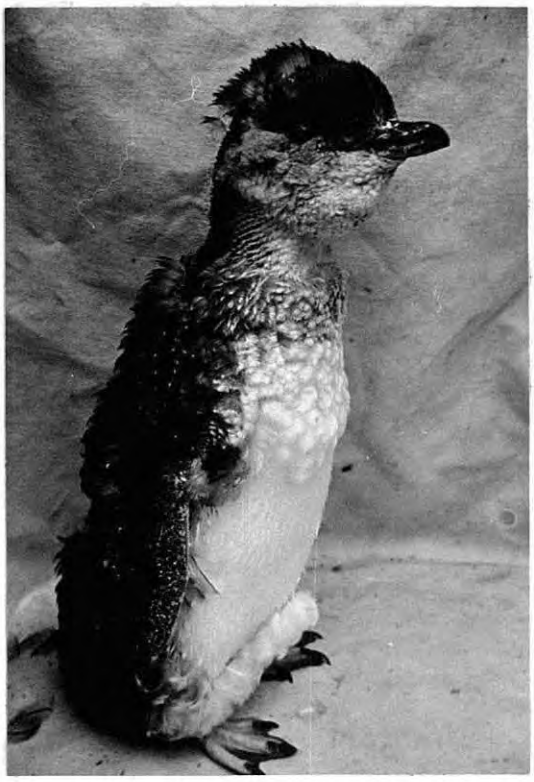
Large patches are clear of old feathers on the abdomen, legs and neck and small patches are clear on the crown, face and back. The new feathers are still short on the neck.

d Day 14 (21.ii.62)

The cleared areas are enlarging on the abdomen, legs, back, neck and head. At the posterior edge of the flippers the skin, with the old feathers still attached, is starting to peel.

a

b



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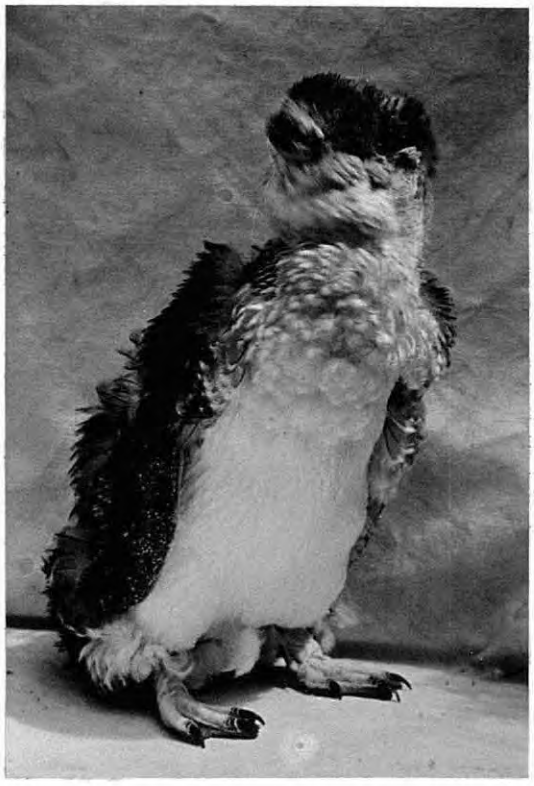


d

PLATE XV

PLATE XVI

LATE STAGES IN THE MOULT OF THE MALE N413

The shedding of the last old feathers.

a Day 15 (22.ii.62)

The old feathers are still thick on the nose, throat, shoulders and flanks. At the anterior as well as the posterior edge of the flippers, the skin is starting to peel. The skin of the nose is also peeling.

b Day 16 (23.ii.62)

Groups of old feathers remain on the forehead, chin, shoulders, legs, lower abdomen and flippers. A few single old feathers are left on the back and head.

c Day 18 (25.ii.62)

Only a few old feathers remain on the nose, back, shoulders and right flipper. The new feathers are very dark blue and uniform in colour.

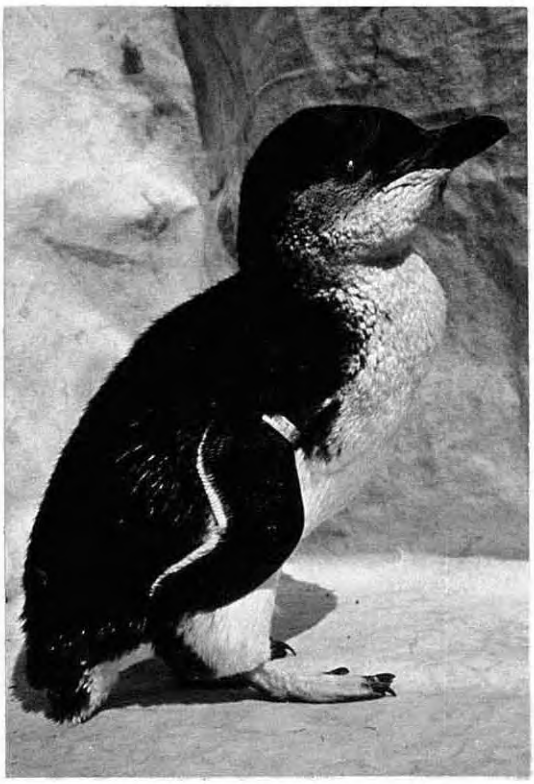
d Day 20 (27.ii.62)

The moult is complete, no old feathers are left and only a few scaly sheaths are still adhering to the new feathers which are now full length. A lighter blue colour is developing on the barbs of the new feathers on the crown and shoulders.

a

b

c



d

PLATE XVI

KEY TO ABBREVIATIONS USED IN TABLES AND FIGURES

The symbols ♂ and ♀ have been used to distinguish male and female birds except in a few tables and diagrams where, as indicated in the accompanying legends, to ensure clarity the letters M and F have been employed

♂ = ♀ or ♀ = ♂	Breeding pairs
♂ - ♀ or ♀ - ♂	Pairs observed keeping company but not breeding together
♀ ce	Female with cloaca enlarged at oviposition
aa	arms act
AE	Ascending from the East
AW	Ascending from the West
c	clear of old feathers
C1	order of hatching in any one nest
C2	
C3	
C4	
C5+	Chick(s) reared to the age of at least 5 weeks and banded
C5-	" not attended after 0-5 weeks, not banded
CAN	" Adopted Naturally
CAS	" " after Substitution
CD	" Departed successfully, minimum departure weight for:- a provisionally sexed male: 900g " " " female: 700g
CDR	" Departed, Recovered dead shortly after entering sea
CF	" Fostered by alien parents
cg	calling
CK	Chick(s) Killed by own parent
CL	" Lost after human interference
CM	" Missing before fully fledged, or when fledged but below minimum successful departure weight
CR	" Recovered dead
CS	" Substituted for a failed egg or a dead chick in another nest
CT	" starving, removed (Taken to be reared in captivity)
ctn	coition
D	Disappeared presumed dead
DE	Descending to the East
DI	Displaying Inside nesting or roosting place by day or night
DO	" Outside at night
DW	Descending to the West
E1	order of laying in any one nest, not necessarily by the same female
E2	
E3	
E4	
1E	order of laying by any one female, not necessarily in the same nest
2E	
3E	
4E	
EB	Egg(s) Broken
ED	" Deserted
ED imm	" " immediately (first night after laying)
EF	" Failed to hatch after 4½ weeks or more of incubation
EL	Egg-Laying period
EM	Egg(s) Missing
en	evicted from nest when attempted to enter
ER	Egg(s) Reappeared, formerly buried
F	Fledgling (except when used to denote ♀)
FB	Failed in Breeding
FB X2	" " " twice in one season
ffl	few feathers left
fno	feathers not open
fo	" opening up
ft	full trumpet
I	Incubating eggs
✕	Not Incubating eggs
J	Juvenile
KC	Keeping Company inside nesting or roosting place by day or night
KC♂	" " with another male inside nest
KC♀	" " " " female " " .
KCM	" " Moulting in nesting or roosting place by day or at night
KCO	Keeping Company Outside at night
KCP	" " with a pair of birds inside nest
L	Lost after human interference
lb	large patches bare
LE	Lost on East side
LW	" " West "
M	Moulting (except when used to denote ♂)
MA	" Alone inside nesting or roosting place
MM	" with Mate " " " " "
MO	" Outside at night
MP	" with a pair of birds inside nesting or roosting place
MSB	" " several " " " " " "
MSS	" " a bird of the Same Sex inside nesting or roosting place
NB	Not observed Breeding (not necessarily a non breeder)
NE Asc	NE Ascending place
PGC	Post-Guard stage Chick(s)
Post-C	Post-Chick period
Post-E	Post-Egg "
Post-M	Post-Moult "
Pre-E	Pre-Egg "
ps	provisionally sexed
R	Recovered dead
RA	Roosting Alone inside nesting or roosting place
RAC	" with Alien Chick(s)
RE	Recovered dead on East side
RM	Roosting with Mate
RO	" Outside at night
RW	Recovered dead on West side
sb	small patches bare
SB	Successful in Breeding
SB 1/1	" " " rearing single chick
SB 1/2	" " " " one of two chicks
SB 2/2	" " " " two chicks
SE Asc	SE Ascending place
SO	Standing Outside at night
½t	half trumpet
th	throbbing
UB	Unbanded Bird
Unid	Unidentified Bird
W	Winter period
X2	Breeder nested twice in one season

STAGES OF CHICK DEVELOPMENT

I	Primary Down Only	
	IA	Eyes shut, unable to support head
	IB	" opening, beginning to hold head up
II	Development of Secondary Down	
	IIA	Points appearing para-anal region
	IIB	" " rump and thighs
	IIC	" " shoulders
	IID	" " lower neck
	IIE	" " upper neck and posterior flippers
	IIF	" " crown and flippers
	IIG	" " forehead and anterior flippers
	IIH	" " nose
	IIJ	Secondary down becoming thick, eyes changing colour, no blue feathers yet appearing
III	Development of Adult Plumage and Loss of Down	
	IIIA	Blue feathers appearing tail
	IIIB	" " " thighs and mid-back
	IIIC	" " " shoulders and flippers
	IIID	" " " crown and lower neck, down becoming sparse
	IIIE	" " " face and upper neck
	IIIF	Down lost tail, face and anterior flippers
	IIIG	" " " head, lower back, abdomen and flippers
	IIIH	" only left as ruff on neck, shoulders and head
	IIIJ	" " " " few wisps
	IIIK	No down left